

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In Re Application of:)	
)	
Stuart S.P. PARKIN et al.)	
)	Group Art Unit: TBA
Serial No.: TBA)	
)	
Filed: November 24, 2003)	Examiner: TBA
)	
For: MAGNETIC TUNNEL)	
JUNCTIONS WITH IMPROVED)	Atty Dkt No. ARC920030058US1
TUNNELING MAGNETO-)	
RESISTANCE)	

INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
Washington, D.C. 20231

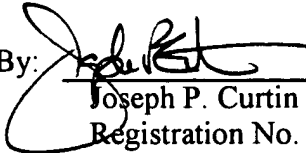
Sir:

Pursuant to 37 C.F.R. § 1.56 and in compliance with 37 C.F.R. § 1.97(b), Applicants submit herewith a Form PTO-1449 listing patents, published patent applications and publications for consideration in connection with the above-identified application. A copy of each publication is provided herewith.

Applicants respectfully request that the Examiner consider and enter these documents into the file of the above-identified application. If any additional fee is deemed necessary, the Commissioner is authorized to charge Deposit Account No. 09-0441.

A general authorization under 37 C.F.R. § 1.25(b), second sentence, is hereby given to credit or debit Deposit Account No. 09-0441 for the instant filing and for any other fees during the pendency of this application under 37 C.F.R. §§ 1.16, 1.17 and 1.18.

Respectfully submitted,

By: 

Joseph P. Curtin
Registration No. 34,571
1469 N.W. Morgan Lane
Portland, Oregon 97229-5291
(503) 296-8373
(503) 297-0452 (facsimile)

Dated: November 24, 2003

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Complete if Known

Sheet 1 of 3

Application Number	TBA
Filing Date	November 24, 2003
First Named Inventor	Stuart S.P. PARKIN
Art Unit	TBA
Examiner Name	TBA
Attorney Docket Number	ARC920030058US1

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Document Number Number-Kind Code ² (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1	US- 5,341,188	08-23-1994	Parkin et al.	
	2	US- 5,465,185	11-07-1995	Heim et al.	
	3	US- 5,640,343	06-17-1997	Gallagher et al.	
	4	US- 5,801,984	09-01-1998	Parkin	
	5	US- 5,841,692	11-24-1998	Gallagher et al.	
	6	US- 5,898,548	04-27-1999	Dill et al.	
	7	US- 6,028,786	02-22-2000	Nishimura	
	8	US- 6,097,625	08-01-2000	Scheuerlein	
	9	US- 6,166,948	12-26-2000	Parkin et al.	
	10	US- 6,341,053 B1	01-22-2002	Nakada et al.	
	11	US- 6,359,289 B1	03-19-2002	Parkin	
	12	US- 6,436,526 B1	08-20-2002	Odagawa et al.	
	13	US- 6,445,024 B1	09-03-2002	Kwon et al.	
	14	US- 6,518,588 B1	02-13-2003	Parkin et al.	
	15	US- 6,519,124 B1	02-11-2003	Redon et al.	
	16	US- 6,522,573 B2	02-18-2003	Saito et al.	
	17	US- 6,538,861 B1	03-25-2003	Hayashi et al.	
	18	US- 6,538,919 B1	03-25-2003	Abraham et al.	
	19	US- 6,556,473 B2	04-29-2003	Saito et al.	

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Foreign Patent Document Country Code ³ Number ⁴ Kind Code ⁵ (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T ⁶

Examiner Signature	Date Considered
--------------------	-----------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**

(Use as many sheets as necessary)

Sheet 2 of 3**Complete if Known**

Application Number	TBA
Filing Date	November 24, 2003
First Named Inventor	Stuart S.P. PARKIN
Art Unit	TBA
Examiner Name	TBA
Attorney Docket Number	ARC920030058US1

U. S. PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Document Number	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number-Kind Code ² (if known)			
	20	US- 2001/0005011 A1	06-28-2001	Minakata et al.	
	21	US- 2001/0026471 A1	10-04-2001	Michijima et al.	
	22	US- 2002/0054462 A1	05-09-2002	Sun et al.	
	23	US- 2002/0097534 A1	07-25-2002	Sun et al.	
	24	US- 2002/0154456 A1	10-24-2002	Carey et al.	
	25	US- 2002/0159203 A1	10-31-2002	Saito et al.	
	26	US- 2003/0035249 A1	02-20-2003	Ho et al.	
	27	US- 2003/0072109 A1	04-17-2003	Sharma et al.	
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			
		US-			

FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. ¹	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages Or Relevant Figures Appear	T ⁶
		Country Code ³ Number ⁴ Kind Code ⁵ (if known)				

Examiner Signature	Date Considered
--------------------	-----------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. ¹ Applicant's unique citation designation number (optional). ² See Kinds Codes of USPTO Patent Documents at www.uspto.gov or MPEP 901.04. ³ Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶ Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 2 hours to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449/PTO INFORMATION DISCLOSURE STATEMENT BY APPLICANT <i>(Use as many sheets as necessary)</i>				Complete if Known	
				Application Number	TBA
				Filing Date	November 24, 2003
				First Named Inventor	Stuart S.P. PARKIN
				Art Unit	TBA
				Examiner Name	TBA
Sheet	3	of	3	Attorney Docket Number	ARC920030058US1

NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ²
	28	"Artificial Antiferromagnet (AAF) biased spin-valves [Key Benefits]", Shimadzu Application Note, Ref. NA99015.	
	29	S. Colis et al., "CoFe/Ir/CoFe Artificial Antiferromagnetic Sandwich as a Hard Magnetic Layer in Hard-Soft GMR Sensors," IEEE Transactions on Magnetics, Vol. 37, No. 4, pp. 1736-1738, July 2001.	
	30	M. Julliere, "Tunneling Between Ferromagnetic Films," Physics Letters, Volume 54A, Number 3, pp. 225-226, 8 September 1975.	
	31	U.K. Klostermann et al., "Influence of a magnetic seed line on the switching behaviour of submicrometre sized magnetic tunnel junctions," J. of Phys. D: Applied Phys. 34 (2001) 2117-2122.	
	32	R. Meservey et al., "Spin-polarized electron tunneling," PHYSICS REPORTS (Review Section of Physics Letters) 238, No. 4 (1994), pp. 173-243.	
	33	H.A.M van den Berg et al., "Magnetic Tunnel Sensors with Co-Cu Artificial Antiferromagnetic (AAF) Hard Subsystem," IEEE Transactions on Magnetics, Vol. 35, No. 5, pp. 2892-2894, September 1999.	
	34	C.-Y. You et al., "Enhancement of switching stability of tunneling magnetoresistance systems with artificial ferrimagnets," Journal of Applied Physics, Volume 92, Number 7, pp. 3886-3889, 1 October 2002.	
	35	S. Yuasa et al., "Spin-Polarized Resonant Tunneling In Magnetic Tunnel Junctions," Science, Vol. 297, pp. 234-237, 12-July-2002.	

Examiner Signature	Date Considered
--------------------	-----------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ Applicant's unique citation designation number (optional). ² Applicant is to place a check mark here if English language Translation is attached.

This collection of information is required by 37 CFR 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 120 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, Washington, DC 20231.**

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.